

# ISO-NE & Regional issues update

vermont electric power company



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# Markets highlights

- Supreme court upheld FERC Order 745 PRD. Demand response implementation ~summer of 2018.
- ISO-NE zonal demand curves continuing. Some interest in a 5 year transition.
- FCA just completed. \$3B for 2019/2020. Last year was \$4B.
- Energy prices are very low:

# DA vs. RT LMPs (\$/MWh)

## Arithmetic Average

Year 2014	NEMA	CT	ME	NH	VT	RI	SEMA	WCMA	Hub
Day-Ahead	\$64.98	\$64.10	\$61.95	\$64.12	\$63.82	\$64.98	\$64.71	\$64.66	\$64.57
Real-Time	\$64.03	\$63.11	\$59.04	\$61.48	\$61.60	\$63.34	\$63.45	\$63.29	\$63.32
RT Delta %	-1.5%	-1.5%	-4.7%	-4.1%	-3.5%	-2.5%	-2.0%	-2.1%	-1.9%
Year 2015	NEMA	CT	ME	NH	VT	RI	SEMA	WCMA	Hub
Day-Ahead	\$42.56	\$41.23	\$40.81	\$42.11	\$41.58	\$42.20	\$42.23	\$41.93	\$41.90
Real-Time	\$41.58	\$40.58	\$39.23	\$40.21	\$40.22	\$41.03	\$41.21	\$40.96	\$41.00
RT Delta %	-2.3%	-1.6%	-3.9%	-4.5%	-3.3%	-2.8%	-2.4%	-2.3%	-2.2%

January-15	NEMA	CT	ME	NH	VT	RI	SEMA	WCMA	Hub
Day-Ahead	\$71.54	\$69.90	\$67.81	\$70.13	\$70.07	\$71.05	\$71.48	\$71.11	\$71.14
Real-Time	\$66.16	\$64.57	\$62.85	\$64.30	\$64.27	\$65.67	\$66.07	\$65.42	\$65.59
RT Delta %	-7.5%	-7.6%	-7.3%	-8.3%	-8.3%	-7.6%	-7.6%	-8.0%	-7.8%
January-16	NEMA	CT	ME	NH	VT	RI	SEMA	WCMA	Hub
Day-Ahead	\$40.41	\$40.08	\$38.88	\$40.10	\$40.14	\$40.30	\$40.50	\$40.44	\$40.36
Real-Time	\$35.88	\$35.64	\$33.98	\$35.28	\$35.22	\$35.75	\$35.89	\$35.78	\$35.73
RT Delta %	-11.2%	-11.1%	-12.6%	-12.0%	-12.3%	-11.3%	-11.4%	-11.5%	-11.5%
Annual Diff.	NEMA	CT	ME	NH	VT	RI	SEMA	WCMA	Hub
Yr over Yr DA	-43.5%	-42.7%	-42.7%	-42.8%	-42.7%	-43.3%	-43.3%	-43.1%	-43.3%
Yr over Yr RT	-45.8%	-44.8%	-45.9%	-45.1%	-45.2%	-45.6%	-45.7%	-45.3%	-45.5%

Slide provided by ISO-NE NPC meeting.



# Reliability/planning highlights

- Economic study requests are due to ISO by 4/1. (3 requests for wind integration)
- ISO queue has 90 generation projects for 13,300MW being tracked.
- Local system plans, PTF components may need to be funded by local network service.

# New Generation Projection

## *By Fuel Type*

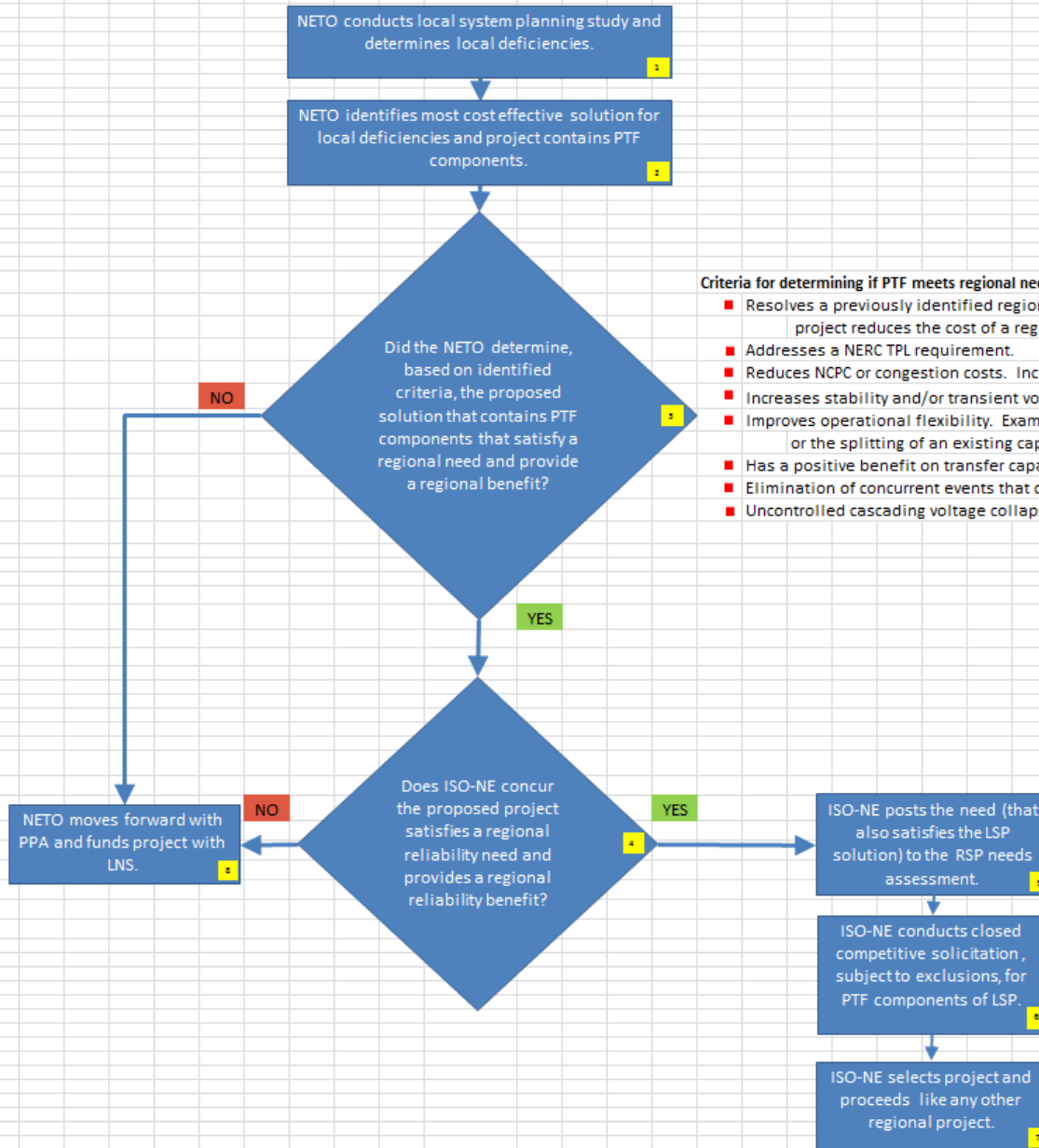
Fuel Type	Total		Green		Yellow	
	No. of Projects	Capacity (MW)	No. of Projects	Capacity (MW)	No. of Projects	Capacity (MW)
Biomass/Wood Waste	2	41	0	0	2	41
Hydro	4	99	0	0	4	99
Landfill Gas	1	2	0	0	1	2
Natural Gas	14	2,331	0	0	14	2,331
Natural Gas/Oil	18	5,863	0	0	18	5,863
Oil	0	0	0	0	0	0
Solar	15	627	5	90	10	537
Wind	33	4,272	5	317	28	3,955
Battery Storage	3	93	0	0	3	93
<b>Total</b>	<b>90</b>	<b>13,328</b>	<b>10</b>	<b>407</b>	<b>80</b>	<b>12,921</b>

Slide provided by ISO-NE NPC meeting.



# PTF Investments from Local Planning that qualify for regional funding

1/15/2014



## Criteria for determining if PTF meets regional need and benefit (Any of the following):

- Resolves a previously identified regional need. If it doesn't completely resolve problem, the local project reduces the cost of a regional upgrade by an amount equal to, or greater than, the local project cost.
- Addresses a NERC TPL requirement.
- Reduces NCPC or congestion costs. Including var support and second contingency protection
- Increases stability and/or transient voltage performance
- Improves operational flexibility. Examples of this could be the addition of a 115 kV cap bank, or the splitting of an existing cap bank, or the closing of a normally open switch, etc.
- Has a positive benefit on transfer capability
- Elimination of concurrent events that cause extreme contingency results
- Uncontrolled cascading voltage collapse observed

# Other regional highlights

- FERC 206 complaint: PTO-AC Cost transparency working group developing protocols for greater information sharing.
- Coordination transaction scheduling (CTS) in use since 12/15/15. 65% of time flows in correct direction/trend.
- FERC NOPR changing exception for wind units to maintain dynamic reactive pf of .95 at POI.